

REMARKS/ARGUMENTS

Applicant appreciates the consideration shown by the Office, as evidenced by the Office Action mailed on 24 January 2006. In that Office Action, the Examiner rejected claims 2-79 under 35 USC 103(a) over WO99/66102 (WO102) in view of EP1054077 (EPO77). After consideration of the Office Action, claims 2-18 and claim 77 have been canceled, claim 68 has been amended to include the subject matter of canceled claim 77 (the amendment itself thus not creating a need for a new search), and claims 78 and 79 were amended to update their dependency from claim 77 to claim 68.

Claims 19-76 and 78-79 remain under consideration in the present application. Applicant respectfully requests reconsideration of the application by the Examiner in light of the above amendments and the following remarks offered in response to the Office Action.

Applicant respectfully traverses the rejection of the remaining claims under 35 USC 103(a) over WO102 and EP077. Applicant respectfully submits that the applied references do not teach, suggest, or disclose (either individually or in combination) the independent claim 19, 20, 37, 52, 67, and 68 recitations. In particular, although additional recitations are provided in the dependent claims and some of the dependent claims, the recitations missing from the applied references include a diffusion-controlling layer between a substrate and an erosion resistive protective structure comprising a shape-memory alloy or shape memory alloy composite.

As the Office Action states, WO102 does not teach or suggest a diffusion-controlling layer. Furthermore, Applicant notes that WO102 emphasizes the importance of a reaction zone layer which would be incompatible with a diffusion-controlling layer. Please see, for example, page 4, lines 17-35 (with emphasis added):

The surface to be plated is preferably of such material that the **reaction layer formed during hot pressing at the boundary layer between the plating material and the surface to be plated** will bind the plating to the surface to be plated. (page 4, lines 17-21).

The surface to be plated is preferably made of austenitic steel. When NiTi is hot-pressed onto the surface of austenitic steel at correct temperature and pressure, a reaction layer is formed at the boundary layer between steel and NiTi that binds the plating to the steel surface extremely well. (page 4, lines 22-28).

By the method of the invention, various objects can be easily NiTi-plated so that the plating shows a microstructure and properties characteristic of the pseudoelasticity of NiTi. When objects are plated by the method of the invention, a reaction layer allowing excellent plating adhesion can be created at the boundary layer between the object to be plated and the plating material.

EP077 appears to relate to providing an oxidation and corrosion resistant protective coating (not "erosion" protection) on a titanium alloy article with the coating comprising austenitic steel and with a barrier layer between the article and the coating (paragraphs 9 and 13). Paragraph 40 of EP077 states:

The embodiment in figure 3 is substantially the same as that in figure 2 but differs in that a barrier layer 24 is provided between the titanium aluminide turbine blade 10 and the protective coating 20. The barrier layer 24 comprises silica, titanium nitride, titanium aluminium nitride or alumina. Other suitable barrier layers are aluminium, cobalt, nickel, iron, silicon, niobium and alloys or compounds of these elements. The barrier layer 24 prevents interdiffusion between the titanium aluminide 10 and the protective austenitic stainless steel coating 20 which **may result in the formation of undesirable phases at the interface between the titanium aluminide 10 and the protective austenitic stainless steel coating 20.**

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Whereas the WO102 reference appears to promote the importance of a reaction at the boundary between the coating and the article, the goal of the EP077 reference is to remove any reaction (phase at the interface). For this reason, Applicant respectfully submits that there would have been no motivation to modify the WO102 reference to include the barrier layer concept of the EP077 reference.

Accordingly, Applicant respectfully submits that claim 19, claim 20, claims 21-36 which depend therefrom, claim 37, claims 38-51 which depend therefrom, claim 52, claims 53-66 which depend therefrom, claim 67, claim 68, and claims 69-76 and 78-79 which depend therefrom define allowable subject matter over the applied art. Withdrawal of the rejections is respectfully requested, and allowance of the claims is respectfully solicited.

Should the Examiner believe that anything further is needed to place the application in better condition for allowance, the Examiner is requested to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

By /Ann M. Agosti/
GENERAL ELECTRIC COMPANY

Ann M. Agosti
Reg. No. 37,372
Customer No. 006147
Niskayuna, New York 12309
Telephone: (518) 387-7713